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09/970,487	10/03/2001	Nikolai K.N. Leung	PA010556	1159

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Qualcomm Incorporated
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EXAMINER
NG, CHRISTINE Y

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.</td><td>Applicant(s)</td></tr>
<tr><td>09/970,487</td><td rowspan="3">LEUNG ET AL.</td></tr>
<tr><td rowspan="2">Examiner</td><td rowspan="2">Art Unit</td></tr>
<tr><td>Christine Ng</td><td>2663</td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 October 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-21</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-21</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>03 October 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>10/3/01, 8/12/03</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 5 and 11 are objected to because of the following informalities:

a) In claim 5 line 9, "from" should be changed to --form--.

b) In claim 11 line 2, "compressed" should be changed to --compresses--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-3 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by

U.S. Patent No. 6,751,218 to Hagirahim et al.

Referring to claim 1, Hagirahim et al disclose in Figure 1 a wireless

communication system (Column 9, lines 54-57) supporting broadcast transmissions, the

system having a broadcast source node (source IP gateway 21 connected to content

server 27) and at least one termination node (destination IP gateway 21), at least one

router (routers 13) coupled between the source node and the at least one termination

node. Refer to Column 2, lines 7-32. The method for setting up transmission paths

comprises:

Determining (Figure 2, steps S1-S3) a transmission range for a broadcast

transmission within the system. Source IP gateway 21 sends a Multicast Initiating

Address MIA to controller 31 to determine the participants of the multicast service using

ATM/IP address pairs. Refer to Column 3, lines 19-38 and Column 4, lines 18-49.

Building (Figure 2, Steps S4-S8) a multicast tree from a first termination node to

the broadcast source node, the multicast tree including the at least one router. After

determining ATM/IP address pairs, "of the IP gateways, those having the IP addresses

in the ATM/IP pairs, request routers to attach the IP host gateways to the multicast and

thus form the multicast group of tree". Refer to Column 3, lines 39-56 and Column 4,

line 65 to Column 5, line 32.

Transmitting (Figure 2, Step S9) a broadcast message through the multicast tree

over the transmission range. Refer to Column 5, lines 33-39.

Referring to claim 2, Hagirahim et al disclose that building a multicast tree

comprises successively registering with neighboring multicast routers (routers 13)

between the first termination node (destination IP gateway 21) and the broadcast

source node (source IP gateway 21). Connections are established when "one or more

of each of the routers 13 in the IP backbone11 is associated with each IP gateway 21".

Refer to Column 3, lines 39-44.

Referring to claim 3, Hagirahim et al disclose that transmitting the broadcast

message comprises:

Receiving the broadcast message at the broadcast source (source IP gateway

21). "The IP multicast data is then encapsulated in ATM cells at the source with an IP

and sent to the gateway 21" (Column 3, lines 47-49).

In response to receiving the broadcast message, the broadcast source

encapsulating the broadcast message in an Internet Protocol packet to form a multicast

Internet Protocol packet. "At the gateway 21 each of the ATM cells is encapsulated in

an IP multicast packet with an IP Multicast Assigned Address and sent to the IP

backbone 11" (Column 3, lines 49-52).

Referring to claim 9, Hagirahim et al disclose in Figure 1 an infrastructure

element (source IP gateway 21) for generating Internet Protocol packets in a

transmission system supporting broadcast transmissions, the infrastructure element

comprising:

Means (Figure 2, Steps S1-S3) for determining a broadcast transmission range.

Source IP gateway 21 sends a Multicast Initiating Address MIA to controller 31 to

determine the participants of the multicast service using ATM/IP address pairs. Refer to

Column 3, lines 19-38 and Column 4, lines 18-49.

Means for generating an Internet Protocol packet, the Internet Protocol

packet having a multicast address. "At the gateway 21 each of the ATM cells is

encapsulated in an IP multicast packet with an IP Multicast Assigned Address and sent

to the IP backbone 11" (Column 3, lines 49-52).

Means for transmitting the Internet Protocol packet. "The IP packets are routed

to the IP host gateways over the IP backbone" (Column 3, lines 53-54).

4.   Claims 13 and 15-20 are rejected under 35 U.S.C. 102(e) as being anticipated by

U.S. Patent No. 6,781,999 to Eyuboglu et al.

Referring to claim 13, Eyuboglu et al disclose in Figure 8 an infrastructure

element (RNC 124,128) for processing broadcast transmissions in a wireless

communication system, the infrastructure element comprising:

Means for receiving a broadcast message, the broadcast message encapsulated

in an Internet Protocol packet, the Internet Protocol packet addressed to a multicast

address. "When the PDSN receives an IP packet that belongs to a multicast group, it

encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10

tunnels to RNC's that serve members of that multicast group". Refer to Column 5, lines

38-43 and Column 9, lines 22-33.

Means for processing the Internet Protocol packet.

Means for addressing the broadcast message to an intended recipient. The RNC

124,128 forwards an incoming multicast packet to those sectors that have a member in

that multicast group. Refer to Column 10, lines 52-55 and Column 11, lines 49-52.

Referring to claim 15, Eyuboglu et al disclose that the multicast address

corresponds to intended recipients of the broadcast message. Refer to Column 5, lines

38-43.

Referring to claim 16, Eyuboglu et al disclose that the infrastructure element

(RNC 124,128) further comprises means for transmitting the broadcast message to an

intended recipient. RNC 124,128 forwards multicast packets to access terminals part of

the multicast group. Refer to Column 10, lines 52-55 and Column 11, lines 49-52.

Referring to claims 17 and 18, Eyuboglu et al disclose in Figure 8 an

infrastructure element (PDSN 100) for processing broadcast transmissions in a wireless

communication system, the infrastructure element comprising:

Means for receiving a broadcast message, the broadcast message encapsulated

in an Internet Protocol packet, the Internet Protocol packet addressed to a multicast

address. PDSN 100 receives an IP packet that belongs to a multicast group. Refer to

Column 9, lines 29-30.

Means for processing the Internet Protocol packet.

Means for preparing a second Internet Protocol packet (Figure 10, link layer

frame carrying IP multicast packet 140) encapsulating the broadcast message and

addressed to a multicast address. "When the PDSN receives an IP packet that belongs

to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over

these multicast A10 tunnels to RNC's that serve members of that multicast group".

Refer to Column 5, lines 38-43 and Column 9, lines 29-33.

Referring to claim 19, Eyuboglu et al disclose that the multicast address

corresponds to intended recipients of the broadcast message. Refer to Column 5, lines

38-43.

Referring to claim 20, Eyuboglu et al disclose in Figure 8 a communication path

for processing broadcast messages in a wireless communication system, comprising:

A first multicast tree portion (IP core network to PDSN 100), wherein the

broadcast message is transmitted addressed to a multicast Internet Protocol address.

PDSN 100 receives multicast traffic from IP core network. Refer to Column 9, lines 22-23.

A second multicast tree portion (PDSN 100 to RNC 124,128), wherein the broadcast message is transmitted addressed to a multicast Internet Protocol address. "When the PDSN receives an IP packet that belongs to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over these multicast A10 tunnels to RNC's that serve members of that multicast group" (Column 9, lines 23-33).

A third portion (RNC 124,128 to RN 160,162), wherein the broadcast message is transmitted addressed to at least one unicast address. "When the RNC serves users from several Radio Node's 160,162, it tunnels unicast copies of the air link frames carrying the IP packets to all these RN's." (Column 10, lines 41-43). Refer to Column 10, lines 11-31.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,751,218 to Hagirahim et al in view of U.S. Patent No. 6,781,999 to Eyuboglu et al.

Hagirahim et al disclose in Figure 5 that the multicast Internet Protocol packet (121) identifies a multicast Internet Protocol address as a destination (131). The

IP_M_Assigned field is the address of the multicast group. Refer to Column 3, lines 36-38 and Column 7, lines 6-10.

Hagirahim et al do not disclose that the multicast Internet Protocol packet identifies the broadcast source as a source.

Eyuboglu et al disclose that multicast IP packets have source addresses identifying the sender of the IP packet. Refer to Column 7, lines 40-59. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made include that the multicast Internet Protocol packet identifies the broadcast source as a source; the motivation being in order to determine a path from the source to the destination nodes through the network.

7.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,751,218 to Hagirahim et al in view of U.S. Patent No. 6,781,999 to Eyuboglu et al, and in further view of U.S. Patent No. 6,895,216 to Sato et al.

Hagirahim et al disclose that transmitting the broadcast message comprises receiving the multicast Internet Protocol packet at the first termination Point (destination IP gateway 21).

Hagirahim et al do not disclose that in response to receiving the multicast Internet Protocol packet the first termination point compresses the multicast Internet Protocol packet to form a compressed packet.

Sato et al disclose compressing multicast information to several wireless terminals in accordance with a transmission rate. Refer to Column 11, lines 42-52. Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to include that in response to receiving the multicast Internet

Protocol packet the first termination point compresses the multicast Internet Protocol

packet to form a compressed packet; the motivation being that in case transmission rate

is low, compressing the multicast information allows more information to be transmitted

per unit time; thereby saving bandwidth and processing time.

Hagirahim et al also do not specifically disclose encapsulating the compressed

packet in an Internet Protocol packet to form a compressed packet. However, the

system disclosed by Hagirahim et al utilizes IP encapsulation of ATM cells.

Hagirahim et al also do not disclose the compressed packet identifying the first

termination point as a source. Refer to the rejection of claim 4.

8.   Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

European Patent Application EP 1071296 to Leroy et al in view of U.S. Patent No.

6,788,681 to Hurren et al.

Referring to claim 6, Leroy et al disclose in Figure 2 a method for processing

Internet Protocol packets in a wireless transmission system supporting broadcast

transmissions, the method comprising:

Receiving an Internet Protocol packet, (PU-DP) the Internet Protocol packet

encapsulating a broadcast message (shown by multicast address PU-MCA). Refer to

Column 5, line 48 to Column 6, line 4.

Encapsulating the broadcast message for transmission (in a PR-DP). Refer to

Column 6, lines 19-45.

Leroy et al do not disclose extracting the broadcast message before encapsulating the broadcast message for transmission.

Hurren et al disclose that upon receiving a multicast packet, the destination node will extract the encapsulated multicast message. Refer to Column 9, lines 12-24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include extracting the broadcast message before encapsulating the broadcast message for transmission; the motivation being that upon receiving an encapsulated multicast message, the destination must extract the message in order to recover the data before determining its next destination.

Referring to claim 8, Leroy et al disclose that encapsulating the extracted broadcast message comprises identifying multicast Internet Protocol destination of the broadcast message (using multicast address PU-MCA). Refer to Column 6, lines 19-45.

9.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 1071296 to Leroy et al in view of U.S. Patent No. 6,788,681 to Hurren et al, and in further view of U.S. Patent No. 6,895,216 to Sato et al.

Leroy et al do not disclose decompressing the broadcast message.

Sato et al disclose that after receiving compressed multicast information, the wireless terminal must decompress the received multicast information using a decompression algorithm corresponding to t he compression algorithm, in order to produce the original multicast information. Refer to Column 12, lines 12-19. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to include decompressing the broadcast message; the motivation being that

the wireless terminal must decompress the received multicast information in order to

produce the original multicast information.

10.   Claims 10, 12, 14 and 21 rejected under 35 U.S.C. 102(e) as being anticipated

by U.S. Patent No. 6,781,999 to Eyuboglu et al in view of U.S. Patent No. 6,801,508 to

Lim.

Referring to claim 10, Eyuboglu et al disclose in Figure 8 a wireless

communication system for processing broadcast transmissions in a wireless

communication system, the system comprising:

A packet service data node (PDSN 100) adapted to receive a broadcast

message. Refer to Column 2, lines 41-58 and Column 9, lines 22-23.

A *radio network controller* (RNC 124,128) adapted to receive the broadcast

message, the broadcast message encapsulated in an Internet Protocol packet

addressed to a multicast address. "When the PDSN receives an IP packet that belongs

to a multicast group, it encapsulates it in a Simple Link Layer frame, and sends it over

these multicast A10 tunnels to RNC's that serve members of that multicast group".

Refer to Column 5, lines 38-43 and Column 9, lines 22-33.

Eyuboglu et al do not disclose that the *radio network controller* is a *packet control*

function node.

Lim discloses in Figure 4 that a RNC (radio network controller) performs the

same functions as a packet control function PCF node (RNC/PCF 121,122,123).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to include that the *radio network controller* is a *packet control function node*; the motivation being that a RNC performs the same functions in a circuit switched environment as a PCF in a packet data environment.

Referring to claim 12, Eyuboglu et al disclose that the packet control function node (RNC 124,128) processes the broadcast message and forwards the broadcast message to an intended recipient. The RNC 124,128 forwards an incoming multicast packet to those sectors that have a member in that multicast group. Refer to Column 10, lines 52-55 and Column 11, lines 49-52.

Referring to claim 14, Eyuboglu et al do not disclose that the infrastructure element (radio network controller) is a packet control function node. Refer to the rejection of claim 10.

Referring to claim 21, Eyuboglu et al disclose that the first multicast tree portion is formed between a content source (IP core network) and a packet data service node (PDSN 100), the second multicast tree portion is formed between the packet data service node (PDSN 100) and a *radio network controller* (RNC 124,128), and the third portion is formed from the *radio network controller* (RNC 124,128) to the base station (connected to RN 160,162).

Eyuboglu et al do not disclose that the *radio network controller* is a *packet control function node*. Refer to the rejection of claim 10.

11.   Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,781,999 to Eyuboglu et al in view of U.S. Patent No. 6,801,508 to Lim, and in further view of U.S. Patent No. 6,895,216 to Sato et al.

Eyuboglu et al do not disclose that the packet service data node compresses the broadcast message and frames the compressed broadcast message.

Sato et al disclose compressing multicast information to several wireless terminals in accordance with a transmission rate. Refer to Column 11, lines 42-52. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the packet service data node compresses the broadcast message and frames the compressed broadcast message; the motivation being that in case transmission rate is low, compressing the multicast information allows more information to be transmitted per unit time; thereby saving bandwidth and processing time.

Conclusion

12.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng   CW
August 18, 2005

RICKY NGO
PRIMARY EXAMINER
8/22/05